

Do business administration studies offer better preparation for supervisory jobs than traditional economics studies?

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**Do business administration studies offer better preparation for
supervisory jobs than traditional economics studies?**

ROA-RM-2002/2E

Hans Heijke, Ger Ramaekers and Catherine Ris

Research Centre for Education and the Labour Market

Faculty of Economics and Business Administration
Maastricht University

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Contents

	Page
Acknowledgements	i
Abstract	iii
1 Introduction	1
2 The data	2
3 Required competences for managerial leadership	4
4 Deficiencies in education	8
5 Which economics graduates obtain supervisory jobs and have the highest payoff?	9
6 Estimation results	11
7 Conclusion	16
References	17
Appendix 1: Definitions of variables	18
Appendix 2: The eight managerial/leadership roles and their key competences	19

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Abstract

The question whether graduates of business administration (BA) are better prepared for supervisory jobs and have a greater chance of acquiring supervisory jobs than non-BA economics graduates, forms the central theme of the paper. In addition, special attention is given to the question whether having a supervisory job pays off, particularly with an educational background in BA. In order to answer these questions, we have used a data set that relates to the labour market position of graduates from Dutch universities at the early stages of their careers.

We have found that BA graduates, despite their multidisciplinary education and the fact that they have fewer deficiencies in their education with respect to the ability for teamwork than non-BA graduates, do not have a greater chance of acquiring supervisory jobs than graduates from non-BA economics courses. We have also found that having a supervisory job pays off, regardless of the education (BA versus non-BA). Lastly, we have found that most of the skills required for managerial leadership are acquired through work and not in education. This suggests that a combination of working and learning may be more effective for developing managerial skills than a purely educational setting.

Key words: business administration and non-business administration graduates, supervisory jobs, required competences, job chances, earnings.

JEL classification: J 24, J 31, J 44.

1 Introduction

During the past few decades, there has been a growing need for university graduates who are properly prepared for management positions in our postindustrial economy with its global competition. This need for competent managers was illustrated by Quinn et al. (1990, p. v), who stated that 'Modern organizations, as never before, and even at the lowest levels, are in need of competent managerial leaders. They want technical ability but they also want more. They want people who can survive and help the organization prosper in a world of constant change and intense competition. This means both technical competence and interpersonal excellence. Management is both a technical *and* a social enterprise'.

Universities responded to the need for graduates who are properly prepared for management positions by starting a variety of graduate and postgraduate courses. These courses have, with reference to the quotation above, a multidisciplinary character with an emphasis on economic, technical or social sciences. In particular economically oriented courses (business administration) became very popular when companies, after recovering from the oil crises in the 1970s, began to have an almost magnetic appeal to students. In the Netherlands, an increasing number of students chose these economics courses, hoping for a dashing career in corporate business.

In this paper, we want to describe to what extent these expectations have been justified and mesh with real life after graduation. We will focus on economically oriented courses that are aimed at preparing graduates for managerial leadership. These multidisciplinary courses have been grouped together under the heading business administration (BA). In the analysis, BA courses will be compared with economics courses that have a more monodisciplinary orientation. The latter include economics, econometrics and business informatics. For the sake of convenience, the latter courses will be referred to in this paper as 'non-BA'.

In this paper, we will examine which competences are required for managerial leadership and where these competences are acquired. We will also examine whether managerial leaders experience deficiencies in this field. We are particularly interested in finding out whether BA graduates are better prepared for supervisory jobs than their colleagues from non-BA economics courses. In addition, we will examine whether BA graduates have a greater chance of obtaining supervisory jobs than non-BA graduates, and whether having a supervisory job pays off, particularly with an educational background in BA.

A data set of economics graduates from four Dutch universities was used for the analysis. The data relate to the labour market position of graduates eighteen months after graduation (i.e. to the early stages of their careers). This data set contains detailed information that allows us to analyse which graduates made the fastest and most successful start on the way to the top.¹

1. To avoid any distortion resulting from the inclusion of graduates from part-time courses who remain working in the jobs that they already had during their education, only graduates from full-time courses were analysed.

The paper continues in Section 2 with a description of the data used. Section 3 examines the competences required of graduates who work as managerial leaders, and whether these competences were predominantly acquired through education or through work, or otherwise. After having established the competences that are required of managerial leaders, Section 4 addresses the issue of educating for managerial leadership by examining deficiencies in education with respect to the competences that are important for managerial leaders. The issue here is whether BA provides better preparation than non-BA economics courses. Section 5 then examines which characteristics of economics graduates – including their major (BA versus non-BA) – influence the graduates' odds of acquiring supervisory jobs and the payoff of such jobs. In Section 6, we will discuss the empirical results. Lastly, Section 7 contains a summary of our conclusions.

2 The data

The data used here were obtained from an annual, nationwide postal survey among graduates from all universities in the Netherlands.² In this paper, we used data obtained from the postal survey carried out at the end of 1999 among all graduates from the 1997/98 academic year and the postal survey carried out at the end of 2000 among all graduates from the 1998/99 academic year. Since these surveys are held approximately eighteen months after graduation, the study observes graduates at the beginning of their professional careers. This paper covers economics graduates from only four Dutch universities. The reason is that of the six Dutch universities with economics faculties, only four use the extensive version of the questionnaire, which also contains questions about competences. All four universities included in our data set offer non-BA economics courses, whereas BA can only be studied at three of these four universities.

Our sample of 1313 graduates with paid jobs (working at least 12 hours per week) consists of 237 BA graduates (19%) and 1076 non-BA graduates (81%). Table 1 characterises the 1313 paid working BA graduates and non-BA graduates. For a definition of the variables, see Appendix 1.

The table shows that more than one quarter (27%) of the graduates had a supervisory job. Table 1 also shows that the majority of the respondents was male and on average 26 years old at the time of the survey (circa 1.5 years after graduation). Apart from their formal qualification (their university education), many graduates gained additional, informal qualifications before or during their economics study, in the form of experience in a management committee, (international) internship experience or work experience that is relevant for their field of study. At the time of the survey, the majority of graduates in paid jobs had a job that matched their educational level and a job that matched their field of education. They earned on average 13 euros gross per hour. The vast majority was employed in large organisations (with over 100 employees) and in the private sector. On average, they had been working for their current employer for 16 months.

2. This survey was carried out by the Research Centre for Education and the Labour Market (ROA) of Maastricht University.

Table 1

Characteristics of BA graduates and non-BA graduates, used in the estimates

	BA graduates	non-BA graduates	Total
Personal characteristics			
Average age (in years)	26.4 (237)	26.2 (1076)	26.3 (1313)
Gender:*			
- female (reference)	37% (88)	29% (313)	30% (401)
- male	63% (149)	71% (763)	70% (912)
Year of survey**			
- 1999 (reference)	43% (102)	54% (582)	52% (684)
- 2000	57% (135)	46% (494)	48% (629)
Experience			
Study/internship experience:			
- no experience (reference)**	4% (11)	25% (281)	22% (292)
- only domestic internship experience	42% (99)	43% (462)	43% (561)
- (also) international study/internship experience**	54% (127)	31% (333)	35% (460)
Relevant work experience:			
- no (reference)	52% (124)	55% (592)	54% (716)
- yes	48% (113)	45% (484)	46% (597)
Committee experience:*			
- no (reference)	38% (91)	47% (506)	45% (597)
- yes	62% (146)	53% (570)	55% (716)
Change of job after graduation:			
- no (reference)	63% (150)	64% (689)	63% (839)
- yes	37% (87)	36% (387)	37% (474)
Average current job tenure (in months)	15.2 (237)	16.8 (1076)	16.5 (1313)
Job characteristics			
Supervisory job:			
- no (reference)	70% (166)	73% (792)	73% (958)
- yes	30% (71)	27% (284)	27% (355)
Job at university level:			
- no (reference)	37% (88)	37% (399)	37% (484)
- yes	63% (149)	63% (677)	63% (842)
Job in own domain:**			
- no (reference)	39% (93)	27% (291)	29% (384)
- yes	61% (144)	73% (785)	71% (929)
Average gross hourly wages (in euros)*	13.67 (237)	13.10 (1076)	13.21 (1313)
Organisation characteristics			
Large organisation:			
- no (reference)	16% (38)	17% (183)	17% (221)
- yes	84% (199)	83% (893)	83% (1092)
Private sector:			
- no (reference)	8% (91)	11% (119)	11% (210)
- yes	92% (218)	89% (958)	89% (1176)

* Difference between BA graduates and non-BA graduates significant at the 5% level

** Difference between BA graduates and non-BA graduates significant at the 1% level

Standard deviation: - age: 2.2, - job tenure: 13.2, - wage: 3.53

Compared to the non-BA graduates, BA graduates were more often female, were more strongly represented in the 2000 survey, had more experience (they had more often gained international study/internship experience and committee experience before or during their economics study), worked less often in their own educational domain, and earned higher hourly wages.

3 Required competences for managerial leadership

Managerial leadership competences

Traditionally, the term 'leadership' is used to describe what individuals do under conditions of change, whereas the term 'management' is used to describe what executives do under conditions of stability. Leaders have been said to focus on direction setting, articulating a vision and creating something new (doing the right things), whereas managers focus on monitoring, directing and refining current performance (doing things right). However, in our current postindustrial, turbulent environment no organisation can survive without executives who are capable of providing both management and leadership. Since 'effective managers and leaders do exactly the same things', the skills required for effective leadership are also required for effective management, and visa versa (Whetten & Cameron, 1995, pp. 16-17). In this paper we use the term 'managerial leadership' to encompass both the dynamic aspect of leadership and the stability aspect of management.

Whetten & Cameron (1995, p. 8) conducted an investigation in which they identified individuals who were rated as highly effective managers in their own organisations. They found that the most frequently identified characteristics of effective managers were all behavioural skills and not personality attributes or styles. 'They consist of an identifiable set of actions that individuals perform and that lead to certain outcomes. An important implication, therefore, is that individuals can learn to perform these actions and can improve their current level of performance.' The actions, which according to Whetten & Cameron (1995, p. 17) are critically important for effective management, refer to personal skills, interpersonal skills and group skills. The actions relating to personal skills are developing self-awareness, managing stress, and solving problems creatively. The actions relating to interpersonal skills are communicating supportively, gaining power and influence, motivating others, and managing conflicts. The actions relating to group skills are empowering and delegating, and building effective teams.

Quinn et al. (1990, p. vi) proposed a theoretical framework that integrates four contrasting perspectives on organising, namely the productive perspective, the human relations perspective, the organising/stabilising perspective, and the adaptive perspective. This framework suggests 'that to accomplish the *productive* functions that are necessary in any organization, a managerial leader must play both a director and a producer role. On the other hand, to accomplish the *human relations* functions that are necessary, a managerial leader must play both a mentor and a facilitator role. Although these two sets of roles are highly contrasting, there is another set of contrasts. To accomplish the *organising or*

stabilising function that is necessary in any organisation, a managerial leader must play both a coordinator and a monitor role. In contrast, to accomplish the *adaptive* function, one must play both an innovator and a broker role.' For each of these eight roles, Quinn et al. (1990, p. 21) presented three key competences (see Appendix 2). 'A competence suggests both the possession of knowledge and the behavioral capacity to act accordingly' (Quinn et al., 1990, p. 20).

Milner & Stinson (1995, pp. 30-38) argued that traditional management and business education falls short in educating leaders for the new competitive environment. They stated that continuous innovation is essential for organisations in a competitive society. In this respect, they saw a holistic perspective as the most defining structural characteristic of organisations. This implies that managerial leaders should be organisationally oriented instead of functionally oriented, which means that they need an understanding of the whole (vision, mission, goals and strategy) and their place within the organisational processes. In other words, they need to have a holistic understanding of the business and of the environment in which the business functions.

Use of managerial leadership competences: empirical evidence

We will now turn our attention to the empirical evidence found in our data set on the competences that are required for managerial leadership. For this aim, we will focus on differences between supervisory and nonsupervisory jobs with respect to the importance of various competences. This part of the paper will be concluded with the question whether competences required for managerial leadership are acquired predominantly through initial education, through work, or through other means.

In our nationwide survey, which covers all sectors of higher education, we compiled a list of 14 competences that represent demands for knowledge and skills. Graduates could indicate for each competence to what degree they made use of that particular competence in their current job. The intensity of use was measured on a 5-point scale, ranging from 1 ('do not use') to 5 ('use to a high degree').

For both graduates working in supervisory jobs and graduates working in nonsupervisory jobs, Table 2 shows the intensity of use of the 14 competences. For each competence, the table contains the percentage share of graduates who stated that they used that particular competence to a high degree.

Referring to Quinn et al. (1990, p. 21), it may be expected that of these 14 competences, the following directive competences (leadership, initiative), co-ordinative competences (planning and organising), innovative competences (creativity, taking advantage of change), and human relations competences (communicative skills, teamwork) are of crucial importance in supervisory jobs. The same applies to independence, according to Milner & Stinson (1995, p. 35).

Table 2

Use (to a high degree) of competences in supervisory and nonsupervisory jobs (significant differences are shown bold)

	Supervisory jobs	Nonsupervisory jobs
Discipline-specific knowledge	29%	30%
Discipline-specific methods and techniques	25%	27%
Computer use	50%	52%
Leadership	22%**	3%
Initiative	39%**	29%
Independence	52%**	44%
Planning and organising	40%**	28%
Numeracy	43%	43%
Accuracy	36%	39%
Communication skills	52%**	43%
Teamwork	40%**	30%
Creativity	23%**	17%
Taking advantage of change	39%**	30%
International orientation	20%	17%

* Difference is significant at 5% level

** Difference is significant at 1% level

The figures in Table 2 confirm what was put forward by Quinn et al. (1990, p. 21), namely that directive competences (leadership, initiative), co-ordinative competences (planning and organising), innovative competences (creativity, taking advantage of change), and human relations competences (communicative skills, teamwork) are more important for economics graduates working in supervisory jobs than for economics graduates working in nonsupervisory jobs. In addition, the ability to work independently is relatively important in supervisory jobs, as can be expected according to Milter & Stinson (1995, p. 35).

The importance of innovative competences and human relations competences for effective managers is also in line with Whetten & Cameron (1995), who emphasised the importance of personal skills (such as creativity), interpersonal skills (such as communicative skills), and group skills (such as teamwork).

Sources of competences

We have seen that eight competences are significantly more important in supervisory jobs than in nonsupervisory jobs, namely leadership skills, initiative, independence, planning and organising, communication skills, teamwork, creativity, and taking advantage of change. It is interesting to see where these competences are predominantly acquired. Table 3 shows where graduates who work as managerial leaders predominantly acquired these important competences: in education, through work, or by other means. The figures in Table 3 show that the skills relating to leadership, planning and organising, communication, and taking advantage of change are acquired most often in the workplace. Initiative is most often acquired outside education (work and otherwise), while creativity is usually acquired neither in education nor through work. The ability to work as a member of a team is most often

acquired in education by BA graduates and in the workplace by non-BA graduates. This means that of the eight competences that are relatively important for managerial leaders, only teamwork is predominantly acquired in education (and only by BA graduates). This is in line with McCall, Lombardo & Morrison (1988), who found that most of the development of management skills takes place on the job, and not in seminars, classrooms, or MBA programs.

As mentioned above, BA graduates acquire the ability to work as a member of a team most often in education, while non-BA graduates acquire this ability most often in the workplace. Although both BA graduates and non-BA graduates acquire planning and organising competences most often in the workplace, BA graduates acquire these competences more often in education than non-BA graduates. As for the other six competences that are relatively important for managerial leaders, no significant differences between BA graduates and non-BA graduates were found with respect to education as the primary source of acquisition.

Table 3

Sources where managerial leaders predominantly acquire the competences that are of specific importance for them

	Education	Work	Otherwise	N/A
<i>Leadership</i>				
BA	9%	68%	24%	0%
non-BA	7%	69%	21%	4%
<i>Initiative</i>				
BA	11%	42%	43%	4%
non-BA	12%	41%	45%	3%
<i>Independence</i>				
BA	37%	30%	32%	1%
non-BA	43%	24%	32%	1%
<i>Planning and organising*</i>				
BA	33%	47%	19%	1%
non-BA	21%	57%	21%	2%
<i>Communication skills</i>				
BA	20%	49%	30%	1%
non-BA	20%	44%	36%	1%
<i>Teamwork**</i>				
BA	58%	25%	18%	0%
non-BA	31%	43%	24%	2%
<i>Creativity</i>				
BA	15%	30%	52%	4%
non-BA	13%	30%	51%	7%
<i>Taking advantage of change</i>				
BA	15%	50%	33%	3%
non-BA	8%	55%	31%	6%

* Difference between BA graduates and non-BA graduates is significant at 5% level

** Difference between BA graduates and non-BA graduates is significant at 1% level

N/A = Not applicable

4 Deficiencies in education

The issue of educating for managerial leadership is addressed in this section by looking at the deficiencies in education with respect to the eight competences that are crucial for managerial leaders, as experienced by graduates who work as managerial leaders. In Section 6, this issue will be addressed by estimating the effect of the educational major on the probability of acquiring a supervisory job.

In the questionnaire, respondents could indicate up to three competences that they regarded as having received too little attention in their education. Table 4 shows for each competence that is particularly important in supervisory jobs, the percentage of BA and non-BA graduates working as managerial leaders who indicated that it received insufficient attention in education. As can be seen in Table 4, education performs especially poor in the eyes of the managerial leaders with respect to leadership skills and communicative skills. In short, education does not fully succeed in teaching competences that are important for managerial leadership (at least according to the graduates who work as managerial leaders). Perhaps this is why the managerial leadership competences are most often acquired outside education (Table 3). It should be mentioned though that graduates believe that managerial leadership skills are learnable in education.

Table 4

Insufficient attention paid in education to managerial leadership competences, according to managerial leaders

	BA	non-BA
Leadership	56%	47%
Initiative	13%	16%
Independence**	8%	1%
Planning and organising	24%	28%
Communication skills	37%	49%
Teamwork**	3%	18%
Creativity	31%	26%
Taking advantage of change	32%	25%

* Difference between BA graduates and non-BA graduates is significant at 5% level

** Difference between BA graduates and non-BA graduates is significant at 1% level

As we have seen in Table 3, BA graduates who work as managerial leaders acquire the ability to work as a member of a team and planning and organising competences more often in education than non-BA graduates who work as managerial leaders. One may therefore expect that within the population of managerial leaders, BA graduates experienced fewer deficiencies in their education than non-BA graduates, at least with respect to these particular competences.

With respect to the eight competences that are important especially in supervisory jobs, Table 4 shows that BA graduates indeed indicated less often than non-BA graduates that

their education paid insufficient attention to the ability to work as a member of a team. This is in line with the earlier finding (Table 3) that BA graduates acquire this ability more often in education than non-BA graduates. BA graduates also indicated less often (although not significantly) than non-BA graduates that their education paid insufficient attention to planning and organising skills. This is also in line with the earlier finding (Table 3) that BA graduates acquire these skills more often in education than non-BA graduates. On the other hand, BA graduates indicated more often than other graduates that their education paid insufficient attention to the ability to work independently. This is in line with the finding in Table 3 that BA graduates acquire this competence less often (although not significantly) in education than non-BA graduates. As for the other five managerial leadership competences, no clear differences between BA graduates and the other graduates were found in this respect.

5 Which economics graduates obtain supervisory jobs and have the highest payoff?

Having established the deficiencies in education that are experienced by BA graduates and non-BA graduates who work as managerial leaders, we will now turn our attention to the question which economics graduates obtain supervisory jobs and have the highest payoff in these jobs.

In the labour queue theory and the job competition model (Thurow, 1975), it is predominantly the job characteristics that determine productive value and wages. The characteristics of individuals do not influence worker performance, but are crucial in recruiting new workers. The more education a person possesses, the lower the training costs required to make that person perform well. However, the labour queue theory lacks the interaction between the characteristics of an individual and the characteristics of the job. This interaction, however, proves to be crucial in explaining wage differences between people with different educational backgrounds (Hartog, 1985, and for economists: Heijke & Koeslag, 1999). It is the job matching theory that emphasises this interaction.³ Given the job, the degree to which the qualifications acquired by the worker match the qualifications required in the job determines the worker's performance – or productivity – and hence his/her wages in that job. The job matching theory thus shows how individuals are allocated to jobs that require varying qualifications on the basis of the qualifications that they possess. It is assumed that the knowledge and skills that individuals possess do not give them any absolute advantages in employment, but rather that their productivity is partly determined by the characteristics of the specific job which they perform. By utilising their knowledge and skills where these will generate the relatively highest productive output, comparative advantages can be achieved. From the human capital theory, it should be added that persons can increase their capabilities to perform in certain jobs by investing in training and through experience.⁴

3. Tinbergen (1956), Sattinger (1975), Jovanovic (1979) and Hartog (1992) made important contributions to the development of the job matching theory. For an overview of this theory, see Sattinger (1993).

4. For a broad outline of the human capital theory, see Schultz (1961) and Becker (1964).

With regard to supervisory jobs, the literature on management indicates that managerial leadership requires a holistic understanding of business and a number of behavioural skills. With respect to the required holistic understanding of business, we expect that BA, which at least in the Netherlands has a more multidisciplinary orientation – and hence provides a more holistic view on business and its environment – than the monodisciplinary non-BA economics courses, should therefore constitute a more appropriate education for managerial leadership than non-BA economics courses. In line with the job matching theory, one might therefore expect these BA graduates with their multidisciplinary education to have a comparative advantage over the non-BA graduates with their monodisciplinary education, at least in supervisory jobs that require a holistic understanding of business. For this reason it may be expected that BA students probably have greater odds to obtain supervisory jobs than students graduated from non-BA economics courses. As for the required behavioural skills, we expect that, in line with the job matching theory, older and more experienced graduates have the best cards for being selected for supervisory jobs.

If we look at how these competences are rewarded, there are several explanations why – in addition to the matching effect explained above – a management job should pay off. One explanation within the framework of the internal labour market theory is that ‘managers’ salaries are structured to provide incentives to lower-level executives to work hard while competing for high-level jobs’ (Hamermesh & Rees, 1984, p. 352). For instance, the high earnings of a top executive are often the reward for hard work in the past that has shown the corporation’s board that the executive is marginally more productive than others (Lazear & Rosen, 1981).

Another explanation for management jobs paying off can be found in the hierarchical theory of organisation. According to this theory, the salary structure is arranged to reflect the responsibilities required at each level of management. It is argued that the salary is related to the responsibility of the job rather than to the ability of the individual (Lydall, 1968). Hamermesh & Rees (1984, pp. 353-354) opposed the hierarchical theory of organisation. They argued that management jobs pay off because the higher ability, work effort and willingness to take risks of the individual are rewarded.

Within the general framework outlined above, we examined whether BA graduates or non-BA economics graduates have the best odds for acquiring supervisory jobs and subsequently have the highest payoff in these jobs. We used a wage model that allowed us to take the selection of graduates among jobs into account.

The wage equation (Mincer, 1974) may take the following form

$$\ln w_i = \theta' X_i + \alpha S_i + e_i \quad (1)$$

where $\ln w_i$ is the natural logarithm of the gross hourly wages of individual i , X_i is a vector of the individual characteristics (e.g. education (BA versus non-BA), age, or experience) that determine wages, S_i indicates whether or not the job held by individual i is a supervisory job, and e_i is an error term with the usual characteristics.

Introducing a dummy variable S_i in the wage equation to control for working or not working in a supervisory job, implicitly means that the influences of individual characteristics are the same in both kinds of jobs. For this reason, we specified a wage equation for supervisory and nonsupervisory jobs, which takes possible differences into account. So, let $\ln w_{i,s}$ and $\ln w_{i,ns}$ be the natural logarithm of the gross hourly wages of individual i in a supervisory job and in a nonsupervisory job.

The model is then

$$\begin{aligned}\ln w_{i,s} &= \theta'_s X_i + e_{i,s} \\ \ln w_{i,ns} &= \theta'_{ns} X_i + e_{i,ns}\end{aligned}\tag{2}$$

However, there may be selection in the way in which graduates are assigned to jobs. If unobservable individual characteristics, which determine the kind of job a graduate will be assigned to, are the same as characteristics that determine the wages, then estimations from these two subsamples will be biased. To correct for this bias, Heckman (1979) and Lee (1978) suggested a two-step procedure. Firstly we estimated the probability for a graduate to obtain a supervisory job by means of a probit regression analysis, and secondly we introduced the Inverse Mill's Ratio (Lambda) as an additional explanatory variable in the wage equations. This method produced a test for the selection of graduates among jobs.

Finally, the model to be estimated is

$$\begin{aligned}\ln w_{i,s} &= \theta'_s X_i + e_{i,s} \\ \ln w_{i,ns} &= \theta'_{ns} X_i + e_{i,ns} \\ I_i^* &= \gamma' Z_i + v_i\end{aligned}\tag{3}$$

with I_i^* being the latent variable; if $I_i^* > 0$, graduate i works as a supervisor, if $I_i^* < 0$, he/she works in a nonsupervisory job.

Z_i is a vector of individual characteristics that influence the probability of obtaining a supervisory job, such as variables referring to person, education, experience, job and the organisation in which one works, and $(v_i, e_{i,s}, e_{i,ns}) \rightarrow N(0, 0, 0, 1, \sigma_s, \sigma_{ns}, \rho_{vs}, \rho_{vns}, \rho_{sns})$.

6 Estimation results

Table 5 first presents the results on obtaining a supervisory job, distinguishing between BA and non-BA graduates. As personal characteristics, we included two variables in the analysis, namely gender and age. Five variables were used to indicate the experience of graduates, namely study/internship experience, relevant work experience, committee experience, job mobility and current job tenure. Two characteristics of the organisations in which graduates work were included in the analysis, namely size and economic sector. Lastly, three university variables were also introduced in the estimation to control for the graduates' origins.

Table 5

Probit regression analysis of the graduates' odds of acquiring a supervisory job (marginal effects)

	Coefficient	S.E.
<i>Personal characteristics</i>		
Gender: male	0.058*	0.028
Age (in years)	0.009	0.006
Major: BA	0.037	0.034
<i>Experience</i>		
Study/internship experience:		
- no experience (reference)		
- only domestic internship experience	-0.015	0.034
- (also) international study/internship experience	-0.012	0.036
Relevant work experience	0.068**	0.025
Committee experience	0.083**	0.025
Change of job after graduation	0.002	0.029
Current job tenure (in months)	0.008**	0.001
<i>Organisation characteristics</i>		
Large organisation	-0.045	0.033
Private sector	0.101*	0.045
Year of survey: 2000	-0.031	0.025
Constant	-0.760**	0.171
Log Likelihood	-708.82	
Chi-square	114.96**	
N cases	1313	
Pseudo R-squared (McKelvey and Zavoina (1975))	0.424	

3 university dummies are included

* Significant at the 5% level

** Significant at the 1% level

The results in Table 5 show that, contrary to expectations, education (BA versus non-BA) does not seem to play a role in obtaining a supervisory job. The results in Table 5 also indicate, however, that experience – whether acquired through work or a management committee before or during the university education – increases the chances of obtaining a supervisory job. These chances increase with the length of time that graduates have been working in their current jobs. The results also show that male graduates have better odds of being supervisors than female graduates. Moreover, graduates who work in the private sector have better odds of obtaining supervisory jobs than graduates who work in the public sector. Lastly, the university from which graduates came, does not have a significant effect on the chances of obtaining a supervisory job.

In order to find out whether having a supervisory job pays off, the first column of Table 6 presents the results of the estimation of a Mincerian wage equation on the entire sample of

graduates. In line with the framework outlined in Section 5, talent, education and experience were expected to determine wages. In view of this reasoning, age and the variables referring to investment in human capital through experience (study/internship experience, relevant work experience, committee experience, job mobility and current job tenure) were expected to have a positive effect on wages.

Further, in line with the job matching considerations presented in Section 5, we expected that graduates with jobs that match their educational level and educational domain would be more productive and hence earned higher wages than graduates with jobs that did not match their education.

The results of the wage analysis in Table 6 show that, even after controlling for variables referring to person, education, experience, job and work organisation, having a supervisory job indeed pays off: graduates in supervisory jobs earn 4.1% more than graduates in nonsupervisory jobs. In line with the job matching theory – as coefficients on ‘job at university level’ and ‘job in own domain’ show – it also pays off for economics graduates to have jobs that match their education. The results also show that experience is rewarded on the labour market, through the effects of age and current job tenure. Moreover, having committee experience also increases wages. In addition, we found that wages are higher in large organisations (with 100 or more employees) and in the private sector. As was expected by the annual increase of the general wage level, 1.5 years after leaving university, graduates from the 1998/99 academic year earned higher wages than graduates from the 1997/98 academic year. Lastly, with respect to education, the results indicate that BA graduates earn 3% higher wages than non-BA graduates.

So far, we have seen that BA graduates have the same odds of obtaining a supervisory job as non-BA graduates, that having a supervisory job pays off, and that BA graduates earn more than non-BA graduates. The question remains where an educational background in BA pays off most: in supervisory jobs or in non-supervisory jobs? To answer this question, we estimated the wage function for supervisory jobs and nonsupervisory jobs, respectively. The results of the estimates are also shown in Table 6.⁵

Within supervisory jobs (and nonsupervisory jobs for that matter), BA graduates do not earn significant higher wages, which indicates that they do not have a comparative advantage over graduates with a major in non-BA economics courses in these jobs. Nevertheless, one should notice that within nonsupervisory jobs (column (4)), and only within these jobs, BA graduates earn higher wages than non-BA graduates. So, it seems that within these jobs, which are ‘lower-wage jobs’, they obtain a better position than non-BA graduates. However, once we have corrected for selectivity, the effect of the major is no longer significant. This result could indicate that unobservable characteristics related to the choice of a BA study are also linked to the chances of obtaining a supervisory job. And then, without correcting for such selection, the impact of BA studies on wages for nonsupervisors is overestimated.

5. Columns (2) and (4) present the estimation for supervisory jobs and nonsupervisory jobs, respectively, without correcting for selectivity, whereas the estimations in columns (3) and (5) do.

Table 6
Linear regression analysis of gross hourly wages (ln)

	Coefficient (S.E.) (1)	Supervisory Jobs (2) (3)		Nonsupervisory Jobs (4) (5)	
<i>Personal characteristics</i>					
Gender: male	-0.004 (0.013)	0.064 (0.028)**	0.030 (0.036)	-0.023 (0.015)	-0.038 (1.023)
Age (in years)	0.027 (0.002)***	0.035 (0.006)***	0.031 (0.007)***	0.025 (0.003)***	0.022 (0.004)***
Major: BA	0.030 (0.016)*	0.011 (0.031)	-0.009 (0.036)	0.035 (0.019) *	0.024 (0.023)
<i>Experience</i>					
Study/internship experience:					
- no experience (reference)					
- only domestic internship experience	-0.002 (0.016)	-0.005 (0.032)	0.003 (0.036)	-0.0009 (0.019)	0.002 (0.021)
- (also) international study/internship experience	0.013 (0.017)	0.015 (0.035)	0.033 (0.039)	0.015 (0.020)	0.018 (0.022)
Relevant work experience	0.018 (0.012)	-0.002 (0.025)	-0.046 (0.035)	0.025 (0.014)*	0.007 (0.025)
Committee experience	0.024 (0.012)**	0.002 (0.025)	-0.033 (0.034)	0.035 (0.014)**	0.014 (0.028)
Change of job after graduation	-0.0007 (0.013)	0.015 (0.029)	0.036 (0.033)	0.001 (0.016)	-0.002 (0.018)
Current job tenure (in months)	0.001 (0.5E-3)***	0.001 (0.7E-3)	-0.0007 (0.001)	0.002 (0.9E-3)***	-0.0001 (0.003)
<i>Job characteristics</i>					
Job at university level	0.077 (0.013)***	0.107 (0.026)***	0.107 (0.025)***	0.063 (0.015)***	0.063 (0.015)***
Job in own domain	0.025 (0.013)*	0.022 (0.028)	0.024 (0.027)	0.027 (0.015)*	0.027 (0.015)*
Supervisory Job	0.041 (0.014)***	- -	- -	- -	- -
<i>Organisation characteristics</i>					
Large organisation	0.049 (0.016)***	0.049 (0.031)	0.076 (0.037)**	0.048 (0.019)**	0.061 (0.025)**
Private sector	0.150 (0.020)***	0.222 (0.049)***	0.156 (0.063)**	0.137 (0.022)***	0.114 (0.035)***
West location	-0.004 (0.013)	0.034 (0.027)	0.033 (0.027)	-0.005 (0.015)	-0.006 (0.015)
Year of survey: 2000	0.034 (0.012)***	0.048 (0.024)***	0.070 (0.029)**	0.029 (0.014)**	0.037 (0.017)**
Constant	2.279 (0.081)***	1.976 (0.179)***	2.494 (0.335)***	2.367 (0.094)***	2.432 (0.126)***
Lambda	- -	- -	-0.231 (0.122)*	- -	0.180 (0.204)

Table 6 (continued)
Linear regression analysis of gross hourly wages (ln)

	Coefficient (S.E.) (1)	Supervisory Jobs		Nonsupervisory Jobs	
		(2)	(3)	(4)	(5)
F test	18.66***	7.53***	7.46***	11.30***	10.63***
N cases	1313	355		958	
Adjusted R-squared	0.177	0.224	0.226	0.138	0.138

* significant at the 10% level

** significant at the 5% level

*** significant at the 1% level

Looking at the experience variables, we found that in both supervisory jobs and nonsupervisory jobs wages increase with age, but this effect is higher in supervisory jobs. This result suggests that age as a measure of life experience is rewarded better in supervisory jobs. After correcting for selectivity, however, we see that relevant work experience, committee experience and job tenure no longer influence wages. This results from the fact that these variables increase the odds of obtaining a supervisory job, but once one has been selected for a supervisory job these types of experience are no longer rewarded as an extra asset. Experience is important in order to be selected as a supervisor, because it increases managerial competences, but does not as such lead to higher wages.

Both in supervisory jobs and in nonsupervisory jobs, it pays off if the level of the job matches the level of education, but this effect is greater for supervisors. The results also show that working within one's own domain generates higher wages only in nonsupervisory jobs. Within one's own domain, subject-specific skills are apparently rewarded less for managerial leaders than for nonmanagerial workers.

Moreover, male graduates have better odds of obtaining a supervisory job, but once they have a supervisory job (or a nonsupervisory job for that matter) they do not earn higher wages than female managers. The results also show that organisation characteristics influence wages for both supervisors and nonsupervisors.

Lambda was introduced to correct for selection bias. In the supervisors' wage equation, its coefficient indicates that characteristics explaining which graduates work in supervisory jobs are negatively correlated to unobservable characteristics explaining the wages⁶. This suggests that graduates who have been selected for supervisory jobs earn lower wages than graduates who would be randomly selected for these jobs. An explanation for this result could be that young graduates in supervisory jobs need additional training to master the competences required in supervisory jobs and share the costs of this training. This result is

6. However, in the nonsupervisors' wage equation lambda is not significant, which means that the sample of nonsupervisors is not different from the population as a whole.

consistent with the specific sample we used. This sample only covered young graduates who still need to acquire certain competences and whose assignment to a supervisory job is not totally efficient yet.

7 Conclusion

We have found that economics graduates who work in supervisory jobs must have directive competences (leadership skills, taking initiative), co-ordinative competences (planning and organising), innovative competences (creativity, taking advantage of change) and human relations competences (communicative skills, teamwork), as well as the capacity to work independently. In order to educate future managerial leaders, universities started BA courses. These multidisciplinary courses with an emphasis on economics have become very appealing to students. In the Netherlands, an increasing number of students choose BA courses, hoping for a dashing career in corporate business. Our research findings, however, indicate that an economics education, including BA, can transmit these competences only to a limited extent. Of the eight competences mentioned above, only the ability to work as a member of a team is predominantly acquired in education. This is, however, only the case with BA graduates (non-BA graduates acquire this ability predominantly in the workplace). According to managerial leaders, the performance of economics programmes is especially poor with respect to leadership skills and communication skills. In short, education does not fully succeed in teaching competences that are important for managerial leaders. Perhaps this is the reason why these competences are predominantly acquired outside education.

Despite their multidisciplinary education and the fact that they experience fewer deficiencies in their education with respect to teamwork than other graduates, BA graduates do not have better odds of acquiring supervisory jobs than graduates of non-BA economics courses. The results also show that supervisory jobs pay off and that once BA graduates have acquired a supervisory job, they do not earn more than non-BA graduates. Obviously, initial BA studies do not provide their graduates with the intended comparative advantages in fulfilling managerial positions.

It seems very difficult for initial university education to generate the skills that are required for managerial leadership. Since most of these skills are predominantly acquired through work, a combination of working and learning may be more effective. Lastly, it should be pointed out that the research findings concern graduates in the very early stage of their careers.

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Appendix 1: Definitions of variables

Gross hourly wages	Natural logarithm of the gross hourly wages in the current job (measured in Dutch guilders).
Supervisory job	dummy = 1 if the respondent has a job in which he/she supervises other workers.
Gender: male	dummy = 1 if the respondent is a man.
Age	Age in years at the time of graduation.
Year of survey: 2000	dummy = 1 if the respondent graduated in the academic year 1998/1999.
BA	dummy = 1 if the respondent graduated in Business Administration.
Study/internship experience: <i>No experience</i>	dummy = 0 if the respondent did not acquire internship experience or international internship/study experience during his/her study (reference);
<i>Only domestic internship experience</i>	dummy = 1 if the respondent acquired only internship experience in the Netherlands during his/her study;
<i>(Also) international study /internship experience</i>	dummy = 1 if the respondent acquired (also) study experience or internship experience abroad during his/her study.
Relevant work experience	dummy = 1 if the respondent has acquired paid or unpaid work experience relevant to the study, before or during his/her study.
Committee experience	dummy = 1 if the respondent has acquired experience on a management committee before or during his/her study.
Change of job after graduation	dummy = 1 if the respondent changed of employer after graduation.
Current job tenure	Time in months that graduates have been employed with current employer.
Job at university level	dummy = 1 if the respondent has a job for which the employer required a university-level education.
Job in own domain	dummy = 1 if the respondent has a job for which the employer required the respondent's own or a related major.
Large organisation	dummy = 1 if the respondent works in an organisation with more than 100 employees (including branches).
Private sector	dummy = 1 if the respondent works in a profit-seeking organisation.
University	dummy = 1 if the respondent has graduated from the university concerned.
West location	dummy = 1 if the respondent works in the province Noord-Holland, Zuid-Holland or Utrecht.

Appendix 2: The eight managerial/leadership roles and their key competences

Necessary functions	Role of managerial leader	Required key competences
Productive	Director	Taking initiative Goal setting Delegating effectively
	Producer	Personal productivity and motivation Motivating others Time and stress management
Organising/stabilising	Coordinator	Planning Organising and designing Controlling
	Monitor	Reducing information overload Analysing information with critical thinking Presenting information; writing effectively
Human relations	Mentor	Understanding yourself and others Interpersonal communication Developing subordinates
	Facilitator	Team building Participatory decision-making Conflict management
Adaptive	Innovator	Living with change Creative thinking Managing change
	Broker	Building and maintaining a power base Negotiating agreement and commitment Presenting ideas

Source: Quinn et al. (1990, p. 21)